Five-Year Review Report

For the

Sarney Farm Superfund Site

Towns of Amenia/Dover

Dutchess County, New York

September 2006

PREPARED BY:
U.S. Environmental Protection Agency
Region 2
New York, New York

Executive Summary

This is the first five-year review for the Sarney Farm Superfund Site. The site is located in the Town/City of Amenia, Dutchess County, New York. The site remedy was found to function as intended by the decision documents protecting public health and the environment.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Sarney Farm Superfund Site		
EPA ID *(from WasteLAN)*:		
Region: 2	**State: NY**	**City/County: Amenia/Dover Plains; Dutchess Co.**

SITE STATUS	
NPL status: O Final **G** Deleted **G** Other (specify)	
Remediation status (choose all that apply): **G** Under Construction **G** Operating **O** Complete	
Multiple OUs?* **O** YES **G** NO	**Construction completion date:** 8 / 30 / 2001
Are site related properties currently in use? G YES ALL **G** YES SOME **O** NO NONE **G** N/A GW	

REVIEW STATUS	
Lead agency: O EPA **G** State **G** Tribe **G** Other Federal Agency _____	
Author name: Kevin Willis	
Author title: Project Manager	**Author affiliation:** USEPA
Review period:** 9 / 30 / 2001 to 9 / 27 / 2006	
Date(s) of site inspection: 4 / 12 / 2006	
Type of review: G Post-SARA **Statutory** **O** Pre-SARA or post-SARA **Policy** **G** NPL-Removal only **G** Non-NPL Remedial Action Site **G** Regional Discretion	
Review number: O 1 (first) **G** 2 (second) **G** 3 (third) **G** Other (specify) _____	
Triggering action: **G** Actual RA Onsite Construction or RA Start at OU #____ **G** Construction Completion **G** Previous Five-Year Review Report **O** Other	
Triggering action date *(from WasteLAN)*: 9 / 27 / 2001	
Does the report include recommendation(s) and follow-up action(s)? G yes **O** no **Does the remedy protect the environment? O** yes **G** no **G** not yet determined **Acres in use or suitable for reuse: restricted:** 5 acres **unrestricted:** 138 acres	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues, Recommendations and Follow-up Actions:

This report does not identify any issue or recommend any action at this site needed to protect public health and/or the environment that is not addressed by the remedy selected in the site decision documents as routinely operated, modified, maintained and adjusted over time.

Protectiveness Statement:

The implemented remedy for the Sarney Farm Superfund Site protects human health and the environment. There are no exposure pathways that could result in unacceptable risks and none expected as long as the site use remains consistent with the site's access and institutional controls and those controls are properly monitored and maintained.

Other Comments:

None.

Five-Year Review Report

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Five-Year Review Report

I. Introduction

This five-year review for the Sarney Farm Superfund Site (Site), located in the Town of Amenia, Dutchess County, New York, was conducted by United States Environmental Protection Agency (EPA) Remedial Project Manager Kevin Willis. The five-year review was conducted pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq*. and 40 CFR 300.430(f)(4)(ii), and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of a five-year review is to assure that implemented remedies protect public health and the environment and function as intended by the decision documents. This report will become part of the administrative record for this Site.

This is the first review for this site. This review covers the period from September 2001 through September 2006. The triggering action for this review is the date the Preliminary Closeout Report which covered the actions for the three operable units under the single Record of Decision. The lead agency for this site is the USEPA. The sampling of the monitoring and residential wells was performed by MACTEC Consulting, Inc. for Pitney Bowes, Inc.

II. Site Chronology

Table 1, attached, summarizes the site-related events from discovery to the present.

III. Background

Site Location

The Site is located at 225 Benson Hill Road, in the Towns of Amenia and Dover, Dutchess County, New York. The Site is bordered to the south by Benson Hill Road and residential properties, to the west by trees and agricultural areas (pasture and corn fields), to the east by steeply sloping wooded areas, and to the northwest by the 25-acre Cleaver Swamp. (See Site Map)

Site Characteristics

The Site topography is characterized as mountainous or hilly terrain with poorly to moderately well-drained soils. Limited flat terrain surrounds Cleaver Swamp.

Site Geology/Hydrology

The region is dominated by a series of northeast/southwest oriented ridges separated by relatively flat valley floors. The Site is located on the western flank of a secondary ridge approximately one mile west of East Mountain. Cleaver Swamp, a New York State wetland, is immediately north and west of the Site.

Drainage from the Site is primarily toward Cleaver Swamp and a down gradient stream south of the swamp. A minor drainage divide, located on the hill slope north of Benson Hill Road, imparts a localized southern vector for both surface runoff and overburden groundwater flow south of this divide. Groundwater levels, which peak between January and May, generally range from one to thirteen feet below grade.

Bedrock outcroppings are found on the wooded slopes, where the soil consists of well-drained, shallow sandy loam. Soil covering the drier pasture areas varies from shallow sandy loam, with bedrock outcroppings, to gravelly loam, and is well drained. The northern pasture contains poorly drained silt loam that is seasonally wet.

A geophysical investigation completed in 2000, which included seismic refraction, very low frequency and electromagnetic induction surveys, indicated the presence of a shallow bedrock valley with a minimum width of approximately 50 feet, trending northeast to southwest.

History of Contamination

A former owner was permitted to use a 5-acre section of the property as a landfill for municipal wastes, but industrial and municipal wastes were disposed at locations throughout the Site. Nonpermitted hazardous wastes were disposed at the Site from 1965 until 1969. The disposal operations were curtailed by the Dutchess County Department of Health in 1969. The Site was subsequently purchased by the present owner in 1972. Groundwater contamination was found by the Dutchess County Department of Health in 1982 and by New York State in 1984. The Site was placed on the National Priorities List in 1986.

Based on findings discovered during the drum excavation activities, which EPA performed from 1992 – 1995, the Agency issued a Unilateral Administrative Order (UAO) on September 27, 1996 to Pitney Bowes, Inc., Index No. II CERCLA-96-0214, to perform the remedial action (RA) for the excavation and on-site treatment of contaminated soils. Pitney Bowes enlisted the services of Environmental Science and Engineering New York, P.C. (ESE), as its contractor to perform the remedial actions (RA) work.

IV. Remedial Actions

Initial Response

EPA's Removal Program assessed the Site in 1987 and installed a biodegradation/aeration treatment system. A french-drain system collected and treated leachate from the original dump site and areas to which contaminated leachate had migrated. This system remained active until the site remediation began.

Remedial Investigation/Feasibility Study

EPA retained the services of Ebasco, Inc. to conduct a Remedial Investigation/Feasibility Study at the site in 1988, which was completed in May 1990. EPA submitted this information to the public in a Proposed Plan in August 1990 which recommended the excavation and off-site treatment of buried drums, and the excavation and on-site low-temperature thermal treatment of contaminated soils; the Proposed Plan also recommended that additional investigation of the groundwater be conducted to confirm the selection of a no further action/natural attenuation groundwater remedy.

Remedy Selection

A Record of Decision (ROD) was signed in September 1990 addressing all public health and environmental concerns. The remedy chose the following objectives: removal of buried drums and treatment of contaminated soils to prevent the release of contamination into the environment, and no further action with natural attenuation of volatile organic compound (VOC) contaminated groundwater. The minor risk to the public was expected to be eliminated by removal of the sources of the groundwater contamination and subsequent natural attenuation. A long-term groundwater monitoring program would ensure that public health was protected.

The natural attenuation of the groundwater contamination (e.g., biodegradation, dilution, dispersion) was expected to reduce the levels of contaminants in the groundwater and the potential risk to the public. The slow nature of the groundwater flow on the site serves to maximize the effectiveness of natural attenuation processes via biodegradation, volatilization and groundwater dilution. These naturally occurring processes serve to attenuate the groundwater contaminant concentrations to acceptable levels over time (approximately 30 years). Until that time, institutional controls would be used to prevent the use of contaminated groundwater. The long-term monitoring program is designed to include surface water, groundwater, and residential well sampling to verify that the remedy continues to be protective.

Remedial Action Implementation

During the RD, the selected remedy was divided into two operable units (OUs): Drum Excavation (OU1) and Soil Excavation and Treatment (OU2). While there was no active remedy selected for the groundwater, the activities related to the Post-ROD groundwater

investigation and monitoring were referred to as OU3. The OU3 Groundwater Investigation was performed to confirm the selection of the no further action/natural attenuation groundwater remedy in the ROD.

OU1 - Drum Excavation

The drum excavation RA was initiated in March 1992 and was completed in March 1995. A total of 674 55-gallon drums, 552 5-gallon pails, and 20,353 small "lab-pack" containers were excavated and disposed of off-site. Excavation commenced in Area 4 in September 1992. The quantities of buried materials which were excavated were considerably greater than expected in this area. Area 4 excavation was completed in early March 1993. The drum excavation for Areas 1 and 2 was initiated in March 1994.

At the completion of excavation and removal operations, magnetometer and ground-penetrating radar (GPR) surveys of the areas were performed; this work confirmed that Areas 1, 2, and 4 and the adjacent areas did not contain any remaining metallic objects. Also, the GPR survey results did not indicate any additional areas where soil had been significantly disturbed.

All hazardous waste recovered from the Site, including the consolidated lab packs, was disposed of at RCRA-permitted facilities. Disposal operations concluded at the Site on March 17, 1995.

The Buried Container Excavation and Disposal remedial action was described in an approved Remedial Action Report dated October 2, 1995.

OU2 - Soil Excavation and Treatment

The RD for the soil excavation and treatment portion of the ROD was performed by EPA's ARCS contractor, Camp, Dresser, and McKee (CDM). Through evidence collected during the drum excavation activities, Pitney Bowes was identified as a potentially responsible party (PRP). Subsequently, EPA issued a UAO to Pitney Bowes, to conduct the soil remediation. The United States Army Corps of Engineers (USACE) provided oversight on behalf of EPA. The New York State Department of Environmental Conservation (NYSDEC) also provided oversight of the remedial activities.

Mobilization to the Site began in July 1997. The lower field (near Areas 1 and 2) was cleared and compacted to support the low-temperature thermal desorption (LTTD) unit. Soil excavation commenced in August and was completed in November 1997. The initial boundaries of the excavations were located by survey based on the design drawings. A total of 7,300 cubic yards (cy) of soil were excavated during the RA including 1,230 cy from Area 1; 2,672 cy from Area 2; and 3,398 cy from Area 4.

Approximately 200,000 gallons of water that accumulated in excavations, decontamination pads, and the soil loading pad were treated on-site and used as process water for operation of the LTTD.

Treated soil was backfilled into the excavation areas after post-excavation sampling results showed that cleanup levels in the excavated areas had been achieved. In order to restore the excavated areas to grade, two additional sources of backfill were required, namely, a local borrow source and off-site fill. The local borrow source was identified and tested for chemical and geotechnical parameters (such as grain size and organic content). The certified-clean off-site fill was purchased from a nearby commercial gravel provider. Approximately 1,100 CY of off-site backfill was placed in the excavations.

At the completion of treatment operations, the LTTD unit was dismantled and decontaminated. All major components of the LTTD were transported off-site by December 19, 1997. Site restoration began in May 1998 and was completed in July 1998.

The soil excavation and backfill portion of the remedial action was described in an approved Remedial Action Report dated September 1998.

OU3 - Groundwater Investigation

Significant investigations of the site groundwater have been performed since the 1990 ROD to verify that the No Further Action groundwater remedy remained appropriate. The findings of these investigations were summarized in a September 2001 Post-ROD Groundwater Evaluation (PRGE) report.

The groundwater investigation began as part of the RD in early 1991. Nine monitoring wells were installed and sampled. Significant levels of VOC contamination were identified migrating from Area 4. Additional wells were installed to characterize the groundwater flowing from Area 4 towards Cleaver Swamp and the water and sediments in Cleaver Swamp. The surface water sampling in Cleaver Swamp verified that significant contamination was not present in the swamp and that the outflow from the swamp was not contaminated. An evaluation of the hydrogeology in this area indicated a very localized area of a downward flow of the groundwater gradient from the overburden into the bedrock aquifer necessitating further investigation of the fate of this contamination.

An additional five deep bedrock monitoring wells and eleven piezometers were installed at the Site. Multi-level samplers were installed into the monitoring wells to allow for discrete-zone sampling and hydrogeologic analysis of the local aquifer system. Groundwater was sampled and water levels were recorded on two separate events; one site-wide, comprehensive event and a second event focused on areas of potential concern. A previously unobserved set of water-bearing fractures was discovered at one location. A geophysical analysis was performed to map these fractures so additional monitoring wells could be installed to sample the groundwater migration through the bedrock aquifer in this area. Two additional deep bedrock wells were installed in this area with multi-level samplers. In addition, two short-term pumping tests were performed.

Based on the results of this effort, it has been determined that groundwater flow in the overburden generally follows the topography of the Site. As a result of this pattern of flow, it is anticipated that any residual VOCs in the overburden would likely be transported towards Cleaver Swamp. The data and field measurements suggest that the remaining site-related contamination is migrating into Cleaver Swamp where it is attenuated by natural processes (which include biodegradation, dispersion, and volatilization), and ultimately poses no significant health-related exposure to the public or the environment.

The VOC concentrations in the groundwater associated with the Site observed during the post-ROD study have largely decreased with time. Decreasing trends were particularly evident following the removal of the contamination sources. 1,2-Dichloroethane (DCA) has historically been, and remains, the groundwater contaminant observed most frequently and at the highest levels. The highest concentration of DCA was observed at monitoring well TW-1S at a level of 17,000 ppb in March 1992. This well is immediately adjacent to the western edge of Area 4 and this sampling effort preceded the remediation of the area. Following the remediation of Area 4, the levels of DCA in TW-1S dropped to 58 ppb in August 1997, and to nondetectable levels in subsequent sampling events.

The wells located immediately west of Area 4 show that VOC contamination remains but is decreasing in concentration and aerial extent. However, two monitoring wells (MW-7D and MW-9D) show a cleanup time which extends beyond a five-year period. Concentrations in MW-7D have decreased from 6400 ppb in May 1997 to 270 ppb in August 2005. Concentrations in MW-9D have decreased from 610 ppb in September 1999 to 270 ppb in August 2005. At this time, it cannot be determined why contamination in this well is not decreasing as rapidly as in other wells. It is possible that this well is located in an individual bedrock fracture that is tighter and not allowing the contamination to flush through as quickly as the other fractures, or perhaps this contamination is originating from a localized pocket of residual contamination. The contaminated area is located between Area 4 and Cleaver Swamp and is approximately one acre in size. This remaining contamination apparently is discharging into Cleaver Swamp and samples of the swamp water and sediment show conditions advantageous for the natural degradation of VOCs. Observation of the groundwater flow in the study area shows that the groundwater flows into the swamp and analysis of the swamp outflow shows no site-related contamination leaving the site. EPA and NYSDEC believe that the remaining contamination observed on the Site is not migrating offsite and is naturally attenuating. EPA will continue to monitor the groundwater sampling results for this area.

EPA has been conducting residential well sampling at homes nearby that are side- and downgradient of the Site in order to ensure that local residents are not being adversely impacted by migrating groundwater contamination. These residences are situated within one-half mile of the Site along Benson Hill Road. Until June 2002 this sampling was conducted semi-annually. However, since the residential sampling has not indicated any site-related contaminants in excess of State or Federal guidelines in any residential well, in 2002 the sampling frequency was changed to annual. In February 2000, Pitney Bowes

assumed responsibility for the annual residential sampling.

The findings from the groundwater investigation show that the remedy selected in the ROD is appropriate, but contaminants remain in a small area of the aquifer. As described above, the length of time necessary for the remaining groundwater contamination at the Site to reach MCLs is uncertain. The contaminated groundwater will continue to be sampled by Pitney Bowes. The groundwater containing residual contaminants is not currently posing a threat to human health or the environment.

Institutional Controls Implementation

The 1990 ROD indicated that administrative controls may be needed to restrict groundwater use. There is currently a deed notice on a portion of the site indicating that this property is a Superfund site. A conservation easement for the portion of the site containing Cleaver Swamp is currently under discussion with another property owner. EPA believes that the Dutchess County Department of Health (DCDH) requirement for installation of new wells currently provides adequate control to ensure that this localized portion of the aquifer is not utilized for drinking water. The DCDH requires that a plan (including the specific location) for drilling a well be submitted for review and approval prior to the well installation. DCDH reviews this drilling plan against the NYSDEC list of inactive hazardous waste disposal sites to determine if there may be any groundwater quality concerns in the vicinity prior to issuing a permit for well installation.

Operation, Maintenance and Monitoring (O, M &M)

An annual sampling plan has been enacted throughout the past five years. Ten monitoring wells and four residential wells are sampled at low water table periods to assure that the groundwater contamination at the site followed the expected trends. Currently, monitoring wells which are not necessary to the site monitoring plan are being decommissioned as per NYSDEC protocol. Table 2 presents the annual operations and maintenance costs for the site.

V. Progress Since the Last Review

This is the first five-year review for this site.

VI. Five-Year Review Process

Administrative Components

The Five-year review team consisted of: Chloe Metz, Risk Assessor, Kevin Willis, Remedial Project Manager, from USEPA and Michael Scorca, Site Geologist, from the U.S. Geological Survey.

Community Notification and Involvement

The EPA Community Involvement Coordinator for this site, Cecilia Echols, arranged for a notice to be published in a local newspaper, The Daily Freeman on September 24, 2006. This notice indicated that a five-year review would be completed and comments on the remedy or the site were welcome. The notice also identified the local information repositories.

Document Review

The relevant documents and reports which were reviewed in the process of completing this five-year review are included in Table 3.

Data Review

The drum excavation and soil treatment activities at the Sarney Farm Superfund site have reduced the contamination at the site to acceptable health-based levels except in the groundwater at one small portion of the site. After the major remediation effort was completed, the groundwater contaminant levels in the study area have reduced in concentration by an order of magnitude but remain above acceptable levels. The concentrations have been going down at a slower rate than originally anticipated and annual sampling of the monitoring wells will continue.

Site Inspection

A site inspection was conducted on April 12, 2006 by the EPA review team. The following members of the review team were present: Chloe Metz and Kevin Willis from EPA, Michael Scorca, from the US Geological Survey. During the site inspection, no problems or issues with the ongoing remedial activities were noted.

Interviews

EPA interviewed Laura Sarney, Manager of the Sarney Trust, Lucy Hurlburt, property owner adjacent to the Sarney property, and Harold Williams, Environmental Coordinator of Pitney Bowes, Inc. to discuss any concerns they may have regarding the site or this five-year review report. There were no concerns raised which require further action.

Institutional Controls Verification and Effectiveness

The institutional controls in place at the Sarney Farm Superfund site protect human health and the environment. As discussed above, EPA is currently evaluating further institutional controls, in the form of a conservation easement, for the small portion of the site (Cleaver Swamp) where groundwater contamination remains above health-based standards. This action is being considered since, in a review of the past five years of data, the observed contaminant levels in the groundwater are leveling off and may remain above groundwater standards for more than 30 years.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Yes. The original risk assessment for Sarney Farm found that ingestion of contaminated groundwater in the bedrock aquifer could potentially cause adverse health effects and an increased cancer risk to exposed receptors. This finding initiated the soil remediation intended to restore groundwater to potable quality, which is the primary objective outlined in the ROD. EPA's review of site documents and monitoring reports indicate that groundwater concentrations in the overburden aquifer have fallen below MCLs.

Both physical and chemical enhancements to accelerate the attenuation of the observed groundwater contamination have been considered. Due to the nature (structure) of the local aquifer system, it has been considered impractical to attempt any enhancements. Physical enhancements may create new channels of flow, which may divert the contamination away from the presently observed pathways. Chemical enhancements would require an injection into a source which has not been observed.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

(a) There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. The land use and potential exposure pathways considered in the baseline human health risk assessment are still valid. The land use for the site is expected to remain residential and agricultural over the next five years, the period of time considered in this review. The Sarney residence is located sidegradient of the former disposal areas and the well near the house has not shown site-related contaminants above MCLs. No additional structures are expected to be built on-site in the near future. A deed notice remains on the Sarney property. A conservation easement is also in progress, which would prohibit development of the Cleaver Swamp area of the property. Currently, the swamp area is overgrown with vegetation and difficult to access. Although groundwater from the overburden and bedrock aquifers is believed to discharge into the swamp, site-related contamination has not been present there at significant concentrations. Deep bedrock wells to the west of the swamp confirm that groundwater is not migrating off-site. The adjacent properties are also residential and agricultural in nature. They are located side- and downgradient of the site and the potable wells have remained clean throughout the site discovery and remediation process. These wells are tested regularly. The permitting process for installing a new well in Dutchess County is such that the health department would prohibit the installation of any new well on the Sarney property while groundwater remains contaminated above acceptable levels. Exposure to drinking water is therefore not a concern at this time.

Any contaminated soil that may have been available for direct contact (i.e., ingestion or dermal contact) by potential on-site residents, trespassers, or workers has been removed or excavated and treated. Confirmatory post-excavation samples were collected to ensure that treated and excavated soil met the cleanup goals, which are still considered health-protective and are also in compliance with New York State's Technical and

Administrative Guidance Memorandum (TAGM) 4046 guidance level of 10 ppm total VOCs.

An exposure pathway that was not considered in the original risk assessment, but for which our understanding has greatly improved since, is vapor intrusion into indoor air. This pathway is discussed below in Question C.

(b) The selection of contaminants of potential concern and the exposure assumptions used to estimate the potential risks and hazards at the site followed acceptable Agency guidance at the time the assessment was conducted. Using current guidance may result in some differences in the quantification of cancer risk and noncancer hazard since there have been some changes in risk assessment methodology and toxicity data, with the general trend resulting in toxicity values becoming more stringent. Such changes might result in a net effect of increasing the estimated potential risks and hazards, which would also support the decision that a remedy was needed for the site. Changes in risk assessment methodology and toxicity values would therefore not likely result in the selection of a different remedy since the chosen remedy has effectively removed the direct exposure pathways to contamination.

(c) The groundwater remediation goals selected in the ROD were in compliance with New York State Groundwater Quality Standards and Federal National Primary Drinking Water Regulations (MCLs), which are legally enforceable standards (i.e., applicable or relevant and appropriate requirements), designed to protect human health by establishing maximum allowable concentrations of contaminants in drinking water. Recent monitoring well data from the last five years (12/01 – 8/05) indicate that concentrations of 1,2-DCA are still significantly above the MCL of 5. However, concentrations of this compound have decreased greatly over time. In the 2005 data, the highest concentrations of 1,2-DCA were 290, 150, and 55 µg/L in wells MW-7D, MW-9D3, and MW-10D2, respectively. All the shallow wells and some deep wells were removed from the sampling network because concentrations had either reached or were very close to drinking water standards. Currently, three deep, multi-port wells are sampled on an annual basis.

Although there have been concentrations of benzene and trichloroethylene (TCE) in groundwater in the past, which exceeded the groundwater standards, the 2005 data show that concentrations of these compounds are either at or below drinking water standards in the three deep wells that are currently sampled.

As stated earlier, the cleanup goals for soil are still valid.

(d) The remedial action objectives identified in the ROD are still valid. The source material was removed and groundwater quality has begun to improve. Continued monitoring will ensure that concentrations reach drinking water standards within the time frame established by the ROD.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The ability of subsurface vapors to migrate indoors is a pathway of concern for any site where VOCs are in the groundwater and soil at relatively shallow depths. However, contamination in the overburden aquifer at Sarney Farm has dropped and soil has been remediated for VOCs. Additionally, there are no buildings located directly above the previously contaminated areas. A deed notice is currently in place on the Sarney property and a conservation easement is being developed for the property containing Cleaver Swamp that would prohibit future development. Therefore, vapor intrusion is not considered to be an issue.

Technical Assessment Summary

This five-year review finds that:

- The backfilled excavations have not subsided;
- Monitoring wells are functional and securely locked;
- No one is drinking groundwater with site-related contamination above drinking water standards;
- Institutional controls prevent groundwater withdrawals which would effect the remedy
- Wetlands and upland forested areas have sustained plant life.

Table 4 summarizes suggestions stemming from this review.

VIII. Issues, Recommendations and Follow-up Actions

This report does not identify any issue or recommend any action at this site needed to protect public health and/or the environment that is not addressed by the remedy selected in the site decision documents as routinely operated, modified, maintained and adjusted over time.

IX. Protectiveness Statement

The implemented remedy for the Sarney Farm Superfund Site protects human health and the environment. There are no exposure pathways that could result in unacceptable risks and none expected as long as the site use remains consistent with the site access and institutional controls and those controls are properly monitored and maintained.

X. Next Review

The next five-year review for the Sarney Farm Superfund Site should be completed before September 2011, which is five years from this report's approval date.

Approved by: Date:

William McCabe 9-21-06

George Pavlou, Director
Emergency and Remedial Response Division

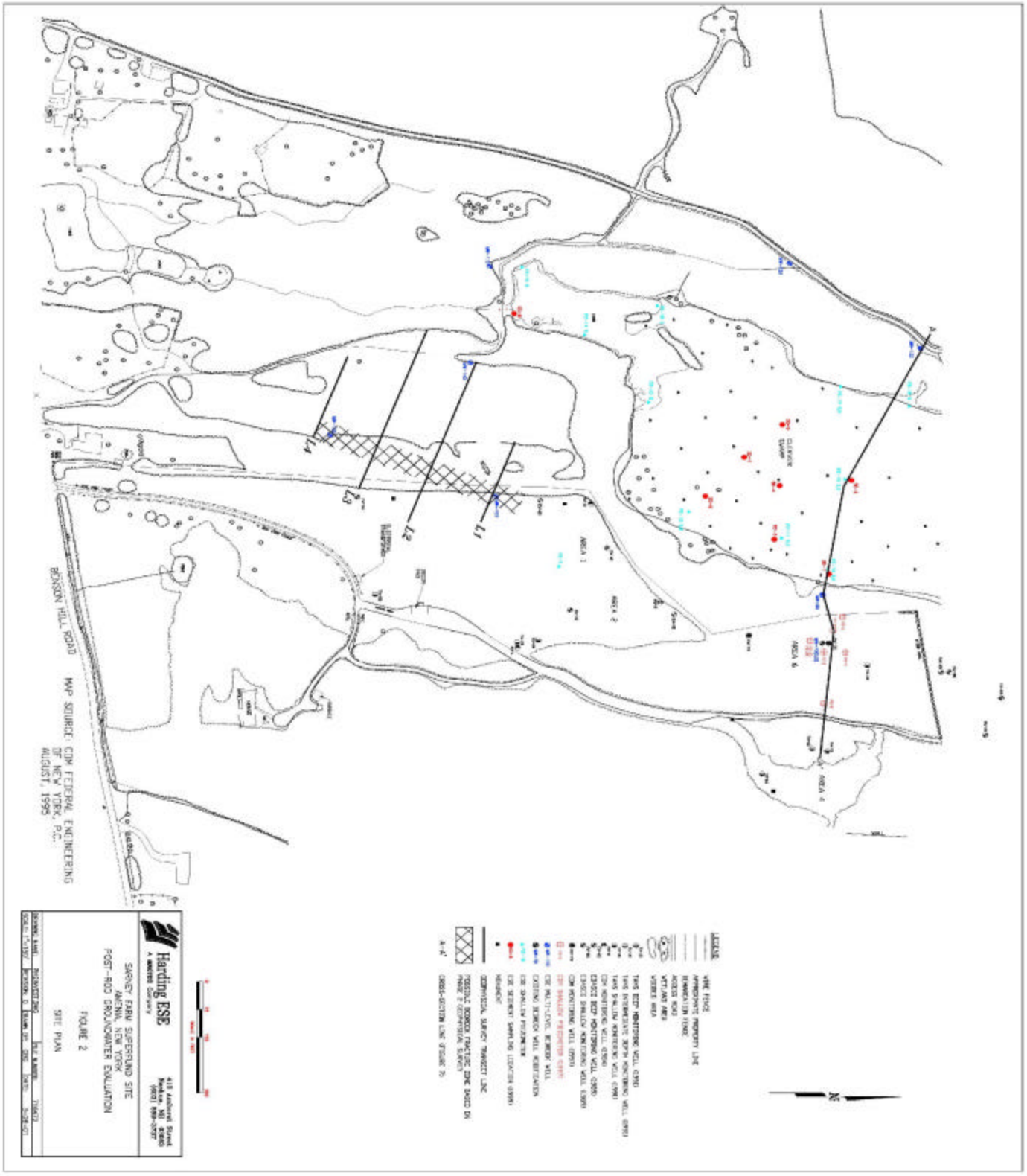
Attachments:

List of Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
CD	Consent Decree
COC	Contaminant of Concern
DCHD	Dutchess County Health Department
EPA	United States of Environmental Protection Agency
FS	Feasibility Study
NPL	National Priorities List
NYDOH	New York State Department of Health
NYSDEC	New York Department of Environmental Conservation
NYCRR	New York Code of Rules and Regulations
O&M	Operation and Maintenance
OU	Operable Unit
ppb	Parts per Billion
ppm	Parts per Million
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager

SVOC	Semi Volatile Organic Compound
VOC	Volatile Organic Compound

Site Map


BENSON HILL ROAD
MAP SOURCE: CDM FEDERAL ENGINEERING OF NEW YORK, P.C. AUGUST, 1995
Harding ESE
SARNEY FARM SUPERFUND SITE
AMENIA, NEW YORK
POST-ROD GROUNDWATER EVALUATION
FIGURE 2
SITE PLAN

Tables:

Table 1: Chronology of Site Events

Event	Date
Initial discovery of problem or contamination	1980
NPL listing	June 10, 1986
Removal actions	September 1987
Remedial Investigation/Feasibility Study completed	September 27, 1990
ROD signature	September 27, 1990
Superfund State Contract	September 24, 1991
Administrative Order on Consent With Sarney Trust	May 13, 1992
Unilateral Administrative Order issued	September 27, 1996
Remedial design started	March 31, 1992
Remedial design completed	March 30, 1995
Actual remedial action started	March 30, 1995
Construction started	November 30, 1992
Construction completed	September 29, 1998

Table 2: Annual System Operations/O&M Costs

	Cost per Year
Groundwater Monitoring, Sampling, and Analysis	$20,000
Data Management and Reporting	$30,000
Total Estimated Cost	*$50,000*

Table 3: Documents, Data, and Information Reviewed in Completing the Five-Year Review	
Document Title, Author	**Submittal Date**
Remedial Investigation/Feasibility Study, Ebasco, Inc.	1987
Record of Decision, EPA	1990
Final Remedial Design Report, USACE	1999
Post-ROD Groundwater Evaluation, QST	2001
Remedial Action Report, EPA	2001
Preliminary Close-Out Report, EPA	2002
Annual Groundwater Sampling Reports, Mactec	2001-2005
Five-year Groundwater Evaluation Report, Mactec	2006
EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new Applicable or Relevant and Appropriate Requirements relating to the protectiveness of the remedy have been developed since EPA issued the ROD.	

Table 4 Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls	
Comment	**Suggestion**
Monitoring should include wells in the upper and lower soil units.	EPA will continue to assess the existing groundwater monitoring network and will evaluate the need for additional monitoring.
Future annual reports need to indicate if contaminant concentrations exceed Maximum Contaminant Levels (MCL) at the respective locations and to assess concentrations over time to demonstrate any trends in data.	EPA will notify the PRP to modify this monitoring reporting requirement.
Contaminant concentrations in the Cleaver Swamp area are leveling off which may indicate that natural attenuation make take more than the original estimated time frame of 30 years. Institutional controls (in addition to the Dutchess County well permitting process) should be evaluated.	EPA is currently negotiating a conservation easement for this area with the property owner.